WHAT IS CLAIMED IS:

1. A method for determining an in vivo cardiac electrophysiology profile of a compound affecting one or more cardiac ion channels which comprises administering the compound to a rat, and simultaneously measuring one or more periods selected from the group consisting of the atrial refractory period, the ventricular refractory period, and the AV nodal refractory period, and one or more intervals selected from an electrocardiogram interval and a cardiac electrogram conduction interval.

2. A method Claim 1, which comprises

1) cannulating the left femoral artery of the rat with a first catheter,

2) cannulating the left femoral vein of the rat with a second catheter and the right femoral vein of the rat with a third catheter,

3) introducing a first recording and stimulating catheter into the right jugular vein of the rat, and advancing the first recording and stimulating catheter into or near the right atrium of the rat to pace the heart of the rat,

4) advancing a second recording and stimulating catheter down the right common carotid of the rat into the left ventricle of the rat,

5) placing needle electrodes subcutaneously at the right axillary and left inguinal areas of the rat,

6) administering the test compound either continuously or intermittently intravenously, and

7) determining one or more intervals selected from the group consisting of an electrocardiogram interval and a cardiac electrogram conduction interval and one or

more periods selected from the group consisting of an atrial refractory period, an ventricular refractory period, and an AV nodal refractory period.

3. A method of Claim 1, where the test compound is a Kv1.5 antagonist.

4. A method of Claim 1, where the cardiac ion channel is the Kv1.5 potassium ion channel.

5. A method of Claim 1, where the test compound is a sodium channel antagonist.

6. A method of Claim 1, where the test compound is a calcium channel antagonist.

7. A method of Claim 1, where the test compound is an ERG potassium channel inhibitor.

8. A method of Claim 1, where the test compound is a cardiac refractoriness modifier or a cardiac conduction modifier.

9. A method for determining an in vivo cardiac electrophysiology profile of a compound that affects one or more cardiac ion channels via either direct interaction with the cardiac ion channel or secondarily through binding to an associated receptor, which comprises administering the compound to a rat, and simultaneously measuring one or more periods selected from the group consisting of an atrial refractory period, a ventricular refractory period, and an AV nodal refractory period, and one or more intervals selected from an electrocardiogram interval and a cardiac electrogram conduction interval.

10. A method of Claim 9, wherein the cardiac ion channel is selected from the group consisting of the potassium ion channel, the sodium ion channel, and the calcium ion channel.

11. A method of Claim 10, wherein the associated receptor is selected from the group consisting of the muscarinic receptor, the adenosinergic receptor and the serotoninergic receptor.